

5. (a) Discuss the micro scopic examination of foods for adulterants and pesticide analysis by using HPLC.

Or

- (b) Write the determination of total nitrogen, silica and sulphur in soil samples.

6. (a) Write the ultimate analysis of coal. How do you determine the calorific value of coal.

Or

- (b) Write the analysis of Narcotic drugs. How do you separate Amino acid by Gas chromatography?
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2019

Time : 3 hours

Full Marks : 80

Answer from **both** the Sections as per direction
The figures in the right-hand margin indicate marks
Candidates are required to answer in their own words
as far as practicable

(ANALYTICAL CHEMISTRY)

SECTION—A

1. Answer any *four* of the following : 4 × 4
- (a) Explain the DTA curve of Calcium Oxalate.
- (b) State and explain the terms involved in Ilkovic equation.
- (c) Write the construction and working principle of Dropping Mercury electrode.
- (d) How do you determine the moisture content in soil ?

(2)

- (e) Write the preparation of Thin Layer chromatographic (TLC) plate.
- (f) Explain the minimization of errors in Analytical experiments ?

Or

2. Answer *all* questions : 2 × 8

- (a) Write the applications of DTA in reaction kinetics.
- (b) Define residual current.
- (c) What are the limitations of amperometric titrations.
- (d) Write the common adulterants in Tea powder.
- (e) Write the composition of soil.
- (f) Define octane number.
- (g) Explain the classification of Drugs with examples.
- (h) Define Accuracy and precision.

(3)

SECTION—B

Answer all questions : 16 × 4

3. (a) Describe the instrumentation Working principle of Differential Thermal Analyser (DTA). How do you check the purity of Calcium and Berium ?

Or

- (b) Explain the instrumentation and working principle of DTGA. Write the applications of DTGA in the study of reaction kinetics.

4. (a) Describe the theory, principle and application of polarography.

Or

- (b) Describe the instrumentation, working principle and analytical applications of cyclic voltametry.